

PARTICLE SIZE STANDARDS NIST Traceable Mean Diameter

1. DESCRIPTION These particle size standards provide accurate and traceable size calibration for particle size analysis. They are part of a series of monodisperse polymer microspheres with calibrated mean diameters traceable to the Standard Meter through the National Institute of Standards and Technology (NIST). Diameters from 20 nanometers (nm) to 160 micrometers (μm) are available as aqueous suspensions in dropper-tipped vials, calibrated by photon correlation spectroscopy (PCS), transmission electron microscopy (TEM) or optical microscopy. The aqueous medium has been prepared to promote dispersion and reduce clumping of the particles. The approximate particle concentration in percent solids is given to facilitate dilution for the calibration and validation of particle analyzers. Diameters from 200 μm to 1000 μm are available as dry spheres, calibrated by optical microscopy. The certified mean diameter is traceable to NIST. Other values are for information only and should not be used as calibration values.

2. PHYSICAL DATA

Certified Mean Diameter: $1.587 \mu\text{m} \pm 0.025 \mu\text{m}$

Standard Deviation: $0.021 \mu\text{m}$

Coefficient of Variation: 1.3%

Microsphere Composition: Polystyrene

Microsphere Density: 1.05 g/cm^3

Index of Refraction: $1.59 @ 589 \text{ nm}$

Approximate Concentration: 1.0% solids

Catalog Number: 4016 and 4016A, Nominal $1.6 \mu\text{m}$

4.55×10^4 beads
ml

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VALUABLE CERTIFICATE - KEEP ON FILE

CERTIFICATE OF CALIBRATION AND TRACEABILITY

This certifies that the calibrated mean diameter dimension of this product was transferred by optical microscopy from a stage micrometer calibrated by the National Institute of Standards and Technology (Calibration Report #5524). NIST Standard Reference Materials 1690, 1692, 1960, and 1961 were used to validate the accuracy and traceability of the calibration methods.

Catalog Number: 4016 and 4016A, Uniform Polymer Size Standards

Certified Mean Diameter: $1.587 \mu\text{m}$

Uncertainty: $\pm 0.025 \mu\text{m}$

Material Batch: 4016-012

Certification Date: July 26, 2007


Ellen B. Layendecker, Metrology Director
Duke Scientific Products



Packaging Lot #

35209

Expiration Date:

JUN'12

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